

SUIT UP, OSHA-STYLE

A guide to meeting the new regs on personal protective equipment



This small collection of personal protective equipment (PPE) is all OSHA requires you to provide your employees for most situations.

When I was just starting out in the trades, I complained to my employer that the polyurethane finishes I was applying were giving me headaches. He said, "Here, try this respirator," and handed me a 17¢ dust mask. It was up to me to do the research, identify the hazard, and provide my own NIOSH-approved protection from VOCs (volatile organic compounds).

No longer. OSHA passed a ruling that went into effect on October 5, 1994, that places the responsibility for choosing "personal protective equipment" (PPE), and for making sure that employees use it, squarely on the shoulders of the employer.

Deciding who pays for all this stuff is a slightly grayer area. Simply put, if the gear is used only on site (such as hard-hats, respirators, and safety glasses), the employer pays. If the gear is worn off site (work boots and insulated winter clothing, for instance), the employee foots the bill. Some companies split the cost of safety equipment with the worker. But regardless of who picks up the tab, it's the company's responsibility to ensure that

the equipment is good enough to protect employees from any hazards they are likely to encounter on the job.

This article will help you select basic PPE for your employees, make sure they use the gear properly, and deal with some common problems, such as fitting and enforcement.

Head Gear

Since OSHA requires you to assess hazards that are present or are likely to be present on your job sites, buy hard-hats that meet ANSI Z89.1 Class A, B, and C. Catalogs and sales people should make it clear whether or not their product carries this label.

Buyer beware: There is equipment out there that looks like a hard-hat but isn't. Catalogs might call them "bump caps" or "Class A hard-hats," but such head gear *does not* satisfy OSHA. They're kind of like those free batting helmets you sometimes get at the ballpark.

Class B hard-hats are acceptable to OSHA, but are not guaranteed to be electrically nonconductive. Class C hats are

by **Bill Brockway**



Figure 1. Foam earplugs (left) offer noise reduction ratings (NRRs) as high as 33, yet cost as little as 15¢ a pair. Some workers find band plugs (center) or ear muffs (right) more comfortable.



Figure 2. These Cricket glasses from Uvex offer a fine-tuning ratchet mechanism that makes a tight seal between the top of the frame and your forehead.

nonconductive and should be used if your work involves exposure to high voltages.

A hard-hat should stay on when you bend over to touch your toes. The best adjustable hats have a knob at the back that ratchets to change the size of the headband. Less expensive models use a snap-lock headband similar to what's on a baseball cap.

If you buy in quantity, you'll probably end up paying \$12 to \$20 per hat. The hats should last a few years, depending on use.

Hearing Protection

Sound is measured in decibels (db), but the scale is logarithmic, not linear. This means that a 100 db noise is ten times as loud as an 90 db noise. And 90 db is ten times as intense as 80 db. The chart below compares the loudness of some common tools.

OSHA sets limits on how long workers can be exposed to specific noise levels, but the limits are fairly liberal: Workers are limited to eight hours of exposure at a sound level of 90 decibels. That's the noise you'd get

from running an electric drill all day. Those of us who value our hearing would probably not want to go strictly by the exposure limits, but prefer to use hearing protection for *any* noise over about 85 decibels. For very loud tools, such as chain saws and pneumatic chisels, consider doubling up your ear protection by wearing foam earplugs under earmuffs.

When buying hearing protection, look for the noise reduction rating (NRR). In theory, the NRR equals the decibel drop you can expect. In reality, however, the effective reduction is often less than the printed NRR, so don't get too hung up on a difference of a few NRR points. Aim for an NRR of 25, and choose the protection that's most comfortable to wear.

Foam or flexible plastic earplugs — with an NRR of 29 to 33 — offer the greatest protection (see Figure 1). These must be compressed and inserted into the ear, where they expand to fill the ear canal. Plugs should be washed regularly with soap and water (preferably at the end of each day). This option is certainly the most cost-effective hearing protection you can buy — generally just a few bucks a month per employee — but some workers don't like the way the foam plugs feel.

Band plugs, which have earplugs on the ends of a C-shaped plastic spring, have a slightly lower NRR (17 to 27), and don't interfere with safety glasses as much as earmuffs. These run about \$5 each, and last a lot longer than foam plugs.

Earmuffs typically have the lowest NRR (17 to 23), but top-of-the-line models from Bilsom and Peltor (see "Sources of Supply,") offer an NRR as high as 29. Expect to pay from \$15 to \$25 for each pair.

Safety Glasses

Regular eyeglasses aren't enough; you need equipment that complies with ANSI Z87.1 rev. '89. Any safety glasses frame that complies will be stamped with those letters and numbers, or at least Z87.1, somewhere on the frame. Lenses that comply will have the manufacturer's initials engraved right on the lense's surface, usually somewhere out of the line of sight.

Simple glasses with side protection are enough for most situations (Figure 2), but goggles are better for demolition or fiberglass insulation work. People operating woodworking machines will benefit from a full-face shield that flips down like a welder's helmet but is made of clear plastic. These three options (listed in order of cost from least to most expensive) will run you \$5 to \$20. They should last for years as long as you store them carefully.

A common complaint of workers is that glasses fog up when worn with a dust mask. The cause is usually a poorly fitted mask — use a better-quality mask or adjust the fit.

Another solution to this problem is an antifog coating applied to the glasses. These coatings stop condensation by saturating the lens with a thin film of water. One such product is called

Job-Site Noise Levels

Normal conversation	60 db
Shop vac	70 db
Electric drill	90 db
Table saw	110 db
Circular saw	120 db
Pneumatic chisel	130 db



Figure 3. To protect your lungs, assess the hazard carefully. A nuisance dust mask (left) might be fine for a few minutes of demolition, but anyone working in dust all day should have a better fitting dust mask (center) or a respirator with appropriate cartridges (right).

Encon Fog Fixer (Encon Safety Products, P.O. Box 3826, Houston, TX 77253; 713/466-1449). Many full-line safety companies offer a permanent antifog coating on nonprescription safety glasses.

Lots of catalogs are offering safety glasses in cool wrap-around styles and wild colors. If you think it will help get your workers to wear them, you can even get them with mirrored lenses.

Dust Masks and Respirators

Lung protection breaks out into two rough categories: masks for “nuisance dust” and respirators with replaceable filters (Figure 3).

Nuisance dust masks. These are the cheapest masks out there — one elastic band and a thin strip of metal over the nose secure the fit. They’re only appro-

priate for dust that isn’t likely to cause scar tissue to build up in your lungs. Don’t try to use these for anything more than occasional use. The cost is less than 20¢ per mask.

The next step up is a cloth mask with two elastic bands and an exhaust port. Some of these are called respirators and are approved by NIOSH, but they’re still disposable. They run \$1 to \$2 per mask.

Respirators. Any prolonged exposure to dust, mists, or gases requires a flexible, half-mask respirator with replaceable filter cartridges. These have a rubber or silicone mask and two or three straps to ensure a tight fit. You can buy filter cartridges for almost any noxious fume you’ll ever run into on a job site, including formaldehyde and paint spray. The mask usually costs under \$30,

though each set of filters you need can run from \$30 to \$50.

Fitting and storage. To check the fit of a respirator, cover the air outlet and blow gently. Anywhere you feel air escaping between your face and the mask is likely to be leaking when you inhale, too. Adjust the straps until there are no leaks.

Always store respirators in sealed plastic bags; otherwise, they filter any air that moves through them and clog up just sitting on the shelf.

Stick By Your Policy

Selecting the right safety equipment for your employees is certainly a step in the right direction, as is a brief training session to help employees identify hazards and teach them how to perform basic fit tests so they use the equipment properly. But it’s not enough to stop there. OSHA is very explicit: Each employer must “select and have each affected employee use appropriate PPE...” Of course, we’ve all heard the excuses: These things are too hot. This mask fogs my glasses. They look dumb. But whether you appeal to your employees’ reason or simply make their jobs contingent on abiding by your rules, it’s up to you to set a policy and enforce it. And this probably means you should pay for most of the equipment. At the least, consider a program that shares the cost. After all, it’s worth a few hundred bucks a year to have a healthy, productive crew. ■

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Sources of Supply

AOSafety
Cabot Safety Products
8001 Woodland Dr.
Indianapolis, IN 46278
800/225-9038

Bilsom International
5300 Region Court
Lakeland, FL 33801
800/733-1177

Conney Safety Products
P.O. Box 44190
Madison, WI 53744
800/356-9100

Direct Safety Co.
P.O. Box 50050
Phoenix, AZ 85076
800/528-7405

ERB
P.O. Box 1237
Woodstock, GA 30188
800/800-6522

Kenco Safety Products
P.O. Box 419
West Hurley, NY 12491
800/872-2964

Lab Safety Supply Co.
P.O. Box 1368
Janesville, WI 53547
800/356-2855

Peltor Inc.
41 Commercial Way
East Providence, RI 02914
800/327-6833

Uvex Safety
10 Thurber Blvd.
Smithfield, RI 02917
800/343-3411